CLAIMS

1. An apparatus for chemical processing comprising an axis about which a plurality of supporting elements are rotated to provide an enhanced gravitational field, each supporting element being inclined to the axis and one another such that one or more flowable and reactive components can pass from one supporting element to the next in a closely controlled chemical reaction sequence, characterised in that the one or more supporting elements comprise means for either controlling the residence time of the reactive components flowing through the apparatus and / or controlling mixing of the reactive components as the reactive components pass from one supporting element to the next.
2. An apparatus as claimed in claim 1 wherein the means for either controlling the residence time of the reactive components flowing through the apparatus and / or controlling mixing of the reactive components cause the reactive components to form fibrils or droplets.
3. An apparatus as claimed in claim 1 or 2 wherein the means are perforations or edge features.
4. An apparatus as claimed in any of the preceding claims wherein the supporting elements are nested such that a first plane of a first supporting element is nested one way and a second plane of a second supporting element is sloped the other way under the first plane.
5. An apparatus as claimed in claim 4 wherein the planes are in the form of cones, truncated cones, spirals or coherent packings.
6. A process for controlling residence time or mixing between one or more flowable and reactive components in an apparatus for chemical processing comprising a plurality of supporting elements, characterised in that a first reactive component is caused to leave one supporting element for another as a fibril or droplet.
7. A process as claimed in claim 6 wherein the reactive components are caused to leave one supporting element for another repeatedly along the closely controlled chemical reaction sequence.
8. A process as claimed in claim 6 or 7 wherein the reactive components travel along the supporting elements as films.
9. A process as claimed in claim 8 wherein at least one film exhibits plug flow characteristics.
10. A process as claimed in any of claims 6-9 wherein a reactant falls onto a subsequent support element in an accelerating field earlier than in other parts of the closely controlled chemical reaction sequence.
11. A process for reacting at least two chemical reactants on an apparatus for chemical processing comprising an axis about which a plurality of supporting elements are rotated to provide an enhanced gravitational field each supporting element being inclined to the axis and one another such that one or more flowable and reactive components can pass from one supporting element to the next in a closely controlled chemical reaction sequence, characterised in that the supporting elements are arranged or modified or the operating conditions are modified such that one reactive component is able to exit onto a second supporting element sooner than other parts of a flow stream thus

avoiding the requirement to flow the full length of the first supporting element and from the start of the second support element.

12. A process for reacting at least two chemical reactants on an apparatus for chemical processing comprising an axis about which a plurality of supporting elements are rotated to provide an enhanced gravitational field each supporting element being inclined to the axis and one another such that one or more flowable and reactive components can pass from one supporting element to the next in a closely controlled chemical reaction sequence, characterised in that the first reactant flows across a substantially planar support and wherein a second reactant flows over the first reactant with a flow characteristic close to plug flow.
13. A process as claimed in claim 12 wherein the first reactant is a carrier.
14. A process as claimed in claim 12 or 13 wherein the second reactant is a film with a Reynolds number of below 100.
15. A process as claimed in claim 14 wherein the film has a thickness of between 1 and 1000 microns.
16. A process as claimed in any of claims 6-15 wherein the reactants are immiscible with one another.